CLASSIFICATION CONFIDENTIAL CONFIDENTIAL 50X1-HUM

CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS CD NO.

COUNTRY USSR
SUBJECT Economic - Coal mining
HOW PUBLISHED Monthly periodical
WHERE PUBLISHED Moscow
DATE PUBLISHED Nov 1948
LANGUAGE Russian

DATE OF INFORMATION 1948
DATE DIST. 23 Dec 1949
NO. OF PAGES 2
SUPPLEMENT TO REPORT NO.

THIS IS UNEVALUATED INFORMATION

SOURCE Mekhanizatsiya Trudoyemkikh i Tyazhelykh Rabot, No 11, 1948. 50X1-HUM

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UTILIZATION OF THE MAKAROV KM-6m COMBINE

The Makarov KM-6m Combine which is being operated in the VUGI (All-Union Coal Institute) experimental mine No 31 in the Karaganda Coal Basin differs from previous models in that the lower unit consists of the KMP-1 cutting machine. Combining the units considerably increased and improved the coal-cutting capacity of the combine. A KM-4 combine, made by a plant of the Ministry of Transport-Machine Building, which was already in operation in the mine was incorporated into the KM-6m model by the mine machine shop.

The new combine weighs 9,206 kilograms. The MA-191/8m electric motor in the lower unit has an hourly capacity of 47 kilowatts. The MA-191/32 electric motors in the central and top units have an hourly capacity of 23.5 kilowatts. The conveyor is started by a 6.3-kilowatt TAG-41/5 electric motor. This combine can work a coal seam from 1.7 to 1.85 meters thick.

The combine underwent detailed testing in the mine; certain defects were discovered and eliminated. Some defects in design were noted: the design of the switch box did not assure convenient access to the fuses of the conveyor electric motor which had to be changed through two separate trapdoors. At the end of the inspection the combine was tested without load for 1½ hours, and all units were found to be operating normally.

The work of the combine was observed from 29 June to 20 July 1948 and the following data was obtained: The net average time of a work cycle of the combine during the period of observation amounted to 8.1 hours or 30 percent, not counting idle periods caused by trouble with the electric motor. For one day the time was 7.5 hours or 33 percent. Average necessary loss of time was 5.8 hours or 24 percent; average unnecessary loss of time, 10.5 hours. During the period of observation the combine moved forward 1,950 linear meters and completed 16.8 work cycles. The average length of a cycle was 26 hours and 40 minutes, the longest period being 34 hours and the shortest, 18 hours. The combine mined an average of 290 meters of coal per day or 108 percent of the planned 270 meters.

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It is expedient to use the KM-6m combine for mining coal of average firmness under a stable seam roof. Under favorable circumstances the combine should complete a work cycle in a day. The top part of the machine should be fixed on a hinged device so that the height of the machine can be decreased while it is being lowered into the mine since that operation accounts for considerable lost time. The design of the switch box should be changed to facilitate access to it during repairs.

The manufacturing plant should put out three types of combines: the KM-4m, the KM-5m, and the KM-6m in accordance with the requirements of mines. It is uneconomical to convert combines in mine shops because proper quality cannot be assured when this is done.

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